

A large flock of seagulls is captured in flight over a dark blue body of water, likely the Black Sea. The birds are white with dark wings and are scattered across the frame, some in sharp focus and others blurred by motion. The sky is a pale, hazy blue. The overall scene conveys a sense of natural activity and wildlife.

NEEDS FOR SUSTAINABLE DEVELOPMENT OF THE BLACK SEA ECOSYSTEM

**Dr.eng. Simion NICOLAEV, Dr. Nicolae C.
PAPADOPOLO**

**National Institute for Marine Research and
Development "Grigore Antipa" Constanta -
ROMANIA**

Needs for Sustainable Development of the Black Sea Ecosystem

1. INTRODUCTION

• The dynamics of environmental changes in the Black Sea, during the last decade, imposes the necessity of quasipermanent survey of the state of the marine ecosystem and of the assessment of its evolutionary trends. The last decade proved the most intense. regional and international efforts devoted to protection and sustainable development of the marine ecosystem:

- Bucharest Convention(1992);

- Odessa Declaration (1993);

- GEF Black Sea Programme :

- Environmental Project (1994-1997)

- Ecosystem Rehabilitation Projects (2001-2005).

NIMRD National Symposium with international participation (Constanta, October 9-11, 2004) - a current analysis of the state of health of the marine ecosystem; comparative guide

Needs for Sustainable Development of the Black Sea Ecosystem

2. Main characteristics of the Romanian marine zone:

- length of littoral: 245 km (6% of total Black Sea littoral);
 - 163 km (67%) - northern sector, not arranged beaches, DDBR;
- EEZ (21986) (33%) occupies actual 80% of the continental shelfed surface and cliffs (harbours Midia, Constanta, Mangalia).
- Romanian marine space (about 30.000 km²) influenced by:
 - Danube (about 1/2 of pollutant input);
 - Other northern rivers, under the influence of the marine current from direction North;
 - Economic activities (harbours, offshore industry, fishing)
 - Urban wastewater.

Needs for Sustainable Development of the Black Sea Ecosystem

Main environmental issues of the Romanian coastal zone (1960 - 2000):

- **coastal erosion (especially in the northern sector);**
- **eutrophication;**
- **pollution (hydrocarbons, urban wastewaters, pesticides, PCBs etc.)**
- **allohtonous immigrants;**
- **decline of living resource stocks.**

Needs for Sustainable Development of the Black Sea Ecosystem

3. Defining elements of national politics concerning sustainable management of the marine environment:

- **New legal framework for the sustainable development of the marine environment(14 laws / 1990-2003)**
 - **Juridical regime of marine water;**
 - **Regulation of environmental protection and of coastal zone management;**
 - **Regulation of juridical regime of protected areas;**
 - **Regulation of marine living resources exploitation;**
 - **Participation of Romania in regional and international cooperations in the marine domain.**

Needs for Sustainable Development of the Black Sea Ecosystem

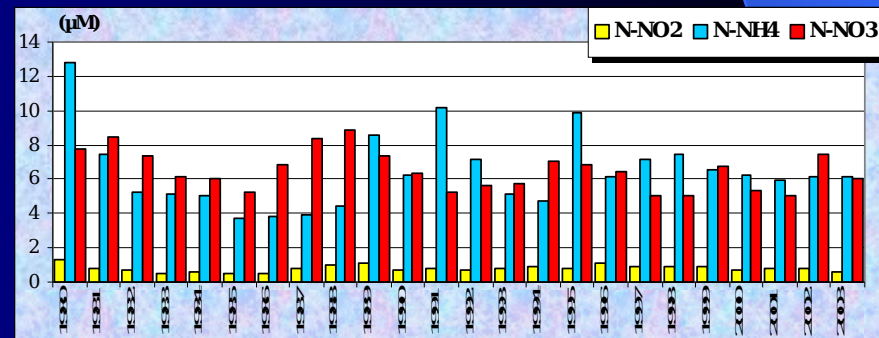
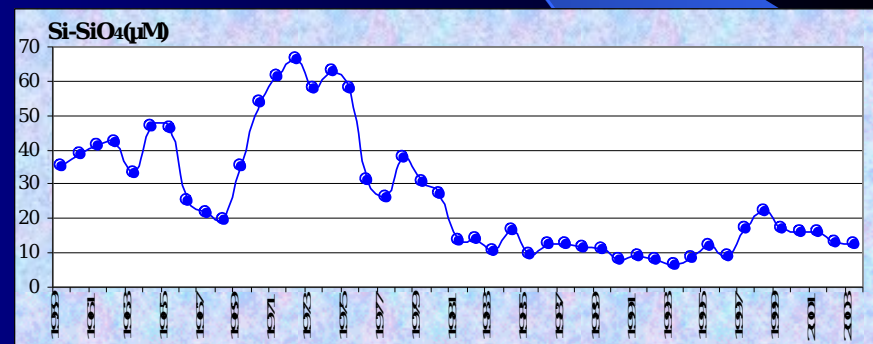
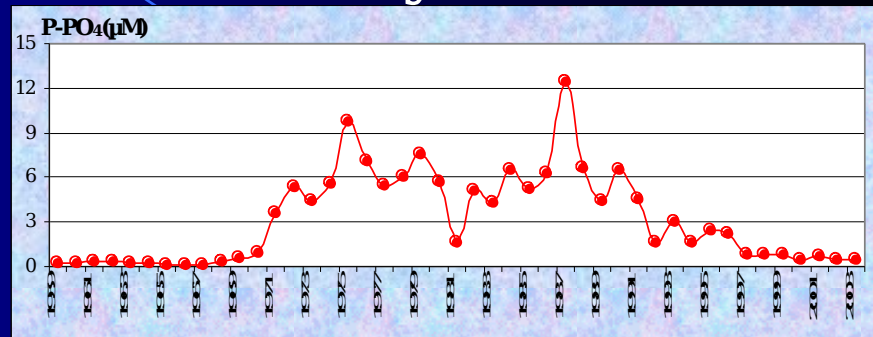
Major achievements in the implementation of sustainable management politics concerning the marine environment:

- **implementation of EU Directives**
- **implementation of FAO Code of Conduct for Responsible Fisheries**
- **implementation of provisions of :**
 - **Bucharest Convention**
 - **MARPOL**
 - **ACCOBAMS**
 - **CITES**
- **participation in international programmes: Global Environment Fund, Black Sea Regional Programme, PHARE/TACIS, NATO, LIFE, UE programmes**
- **major investments in wastewater treatment plants Constanta Sud, Eforie Sud, Mangalia**
- **major investments in Constanta harbour.**

Needs for Sustainable Development of the Black Sea Ecosystem

4. Present state and main evolutionary trends of the marine ecosystem:

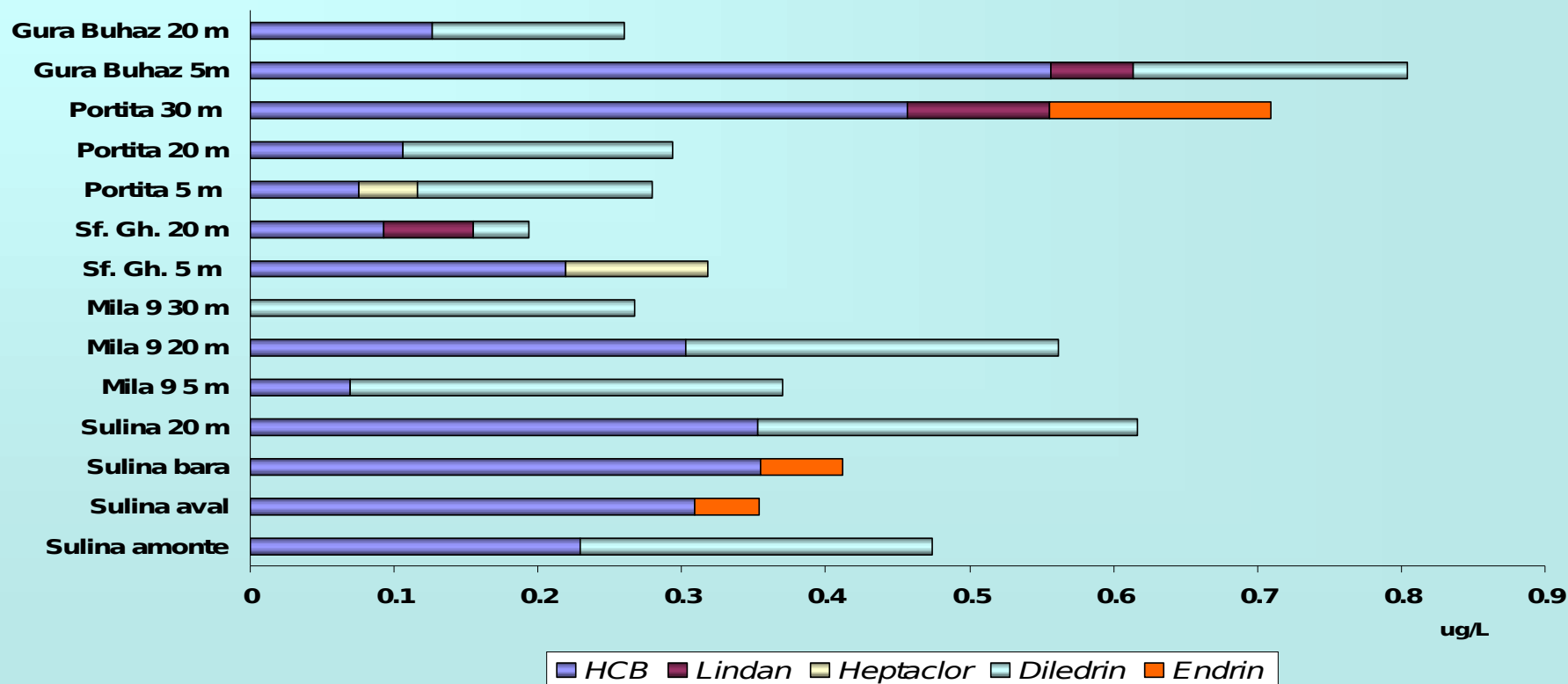
4.1. Compared to the '70 and '80, a gradual decline of eutrophication, more prominent after 1995, as a consequence of decreased annual nutrient inputs.



Needs for Sustainable Development of the Black Sea Ecosystem

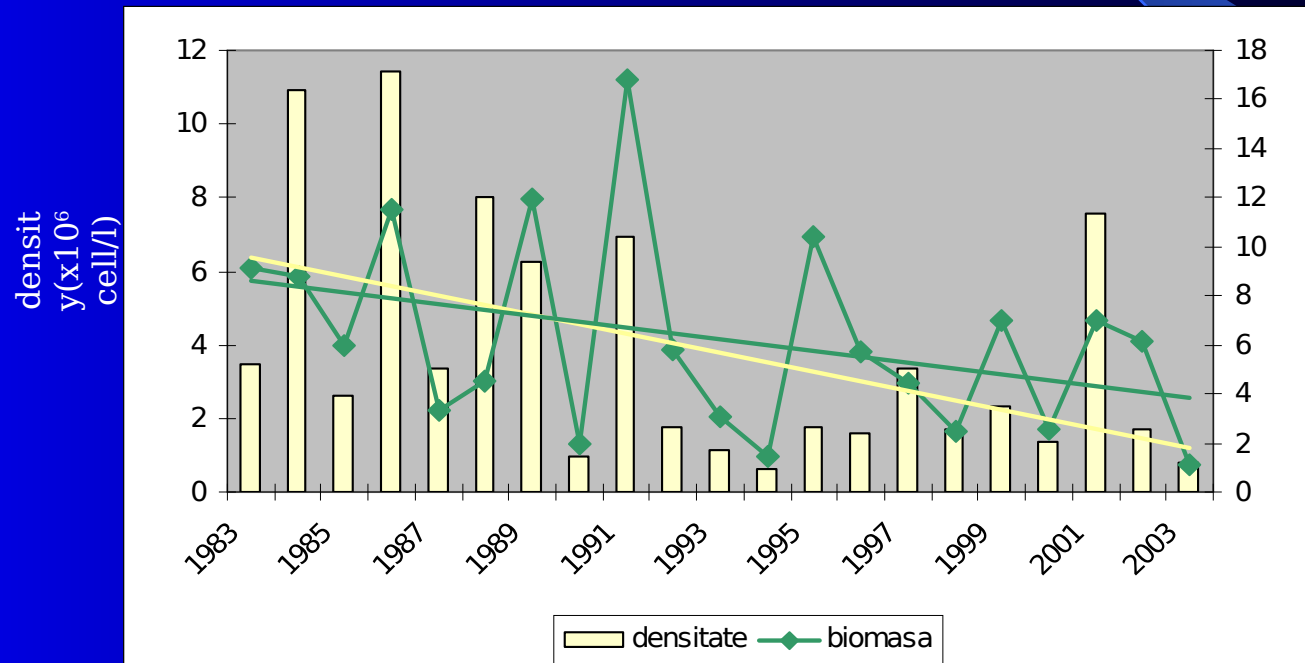
4.2. Pollution in predanubian marine sector and even offshore still evident; in 2003 alarming organochlorinate pesticide concentrations, in the isolated locations.

Situatia poluarii cu pesticide organoclorurate in apa in zona de varsare a Dunarii



Needs for Sustainable Development of the Black Sea Ecosystem

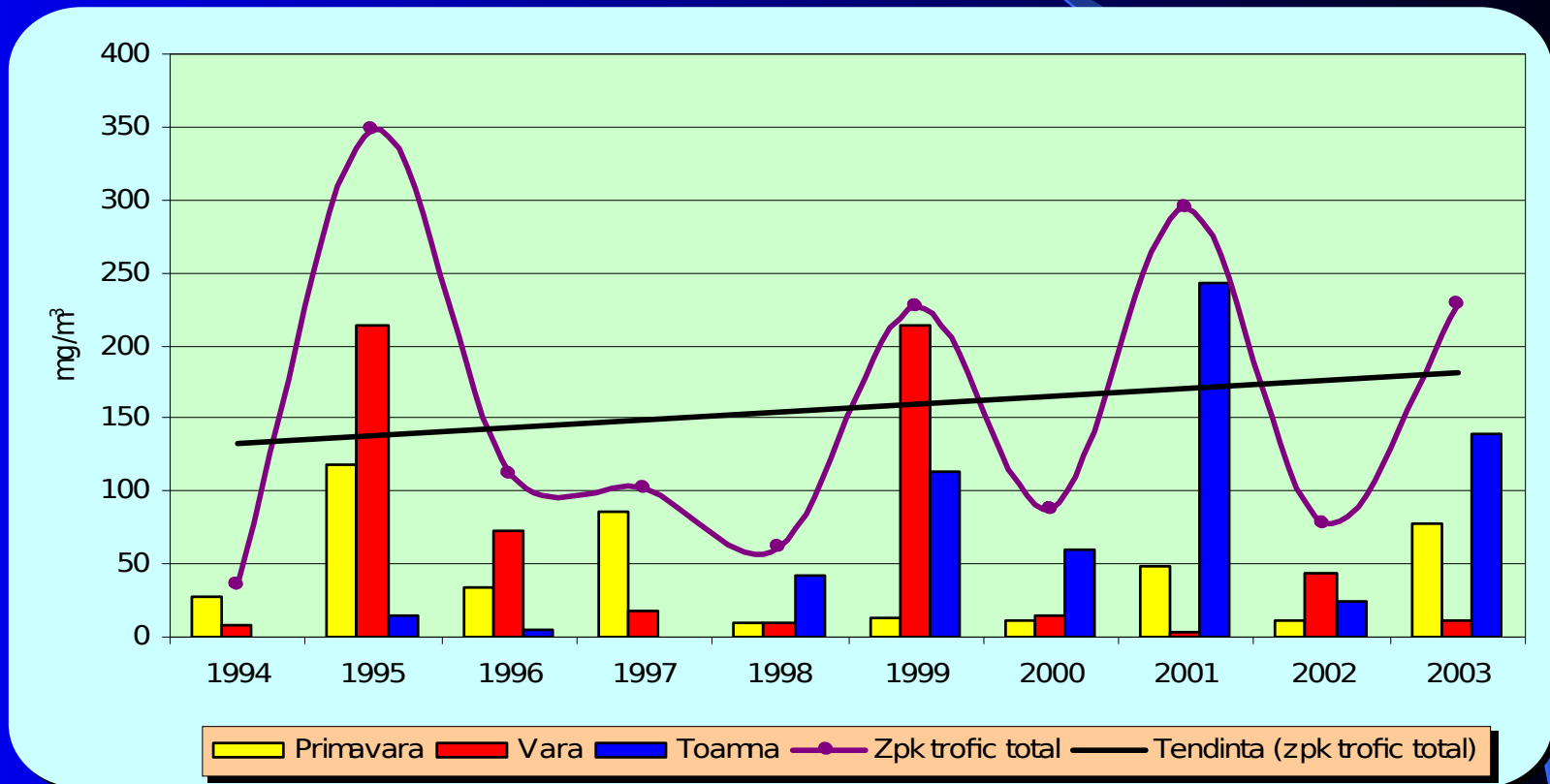
4.3. Decrease of excessive phytoplanktonic production, characteristic to high eutrophication in the '80s, both as annual numerical densities and biomasses.



Nutrient concentrations level still high, able to induce under favorable conditions, summer algal blooms or explosive developments of macrophytic algae.

Needs for Sustainable Development of the Black Sea Ecosystem

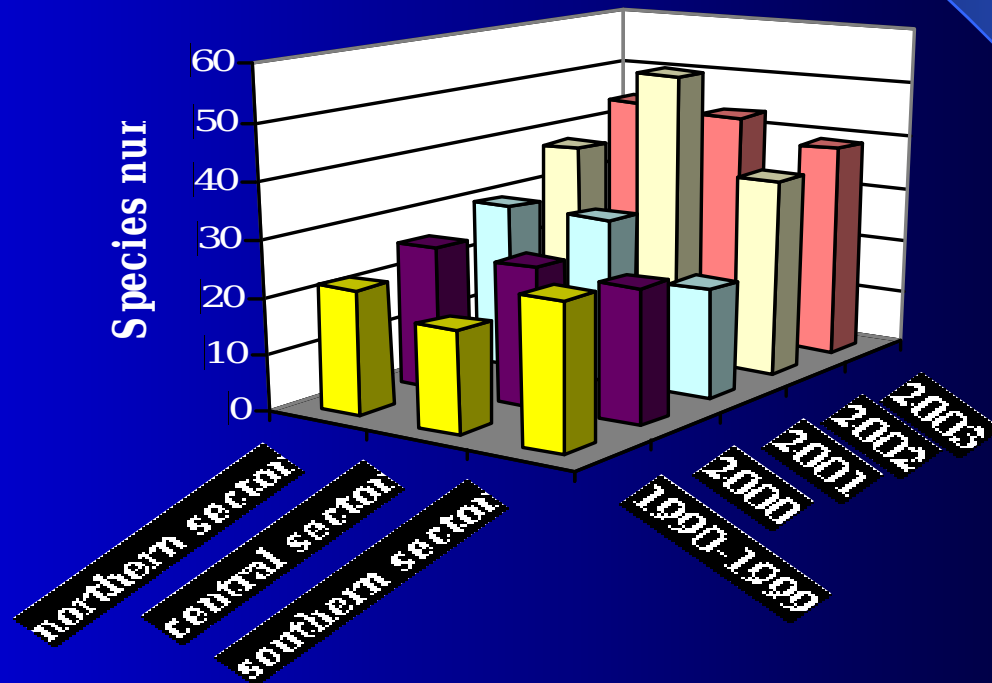
4.4. Decline of secondary production at trophic zooplankton level, more obvious starting 1995.



During last 4 to 5 years, decline of *Noctiluca scintillans* - pollution indicator. Considerable biomass decline of

Needs for Sustainable Development of the Black Sea Ecosystem

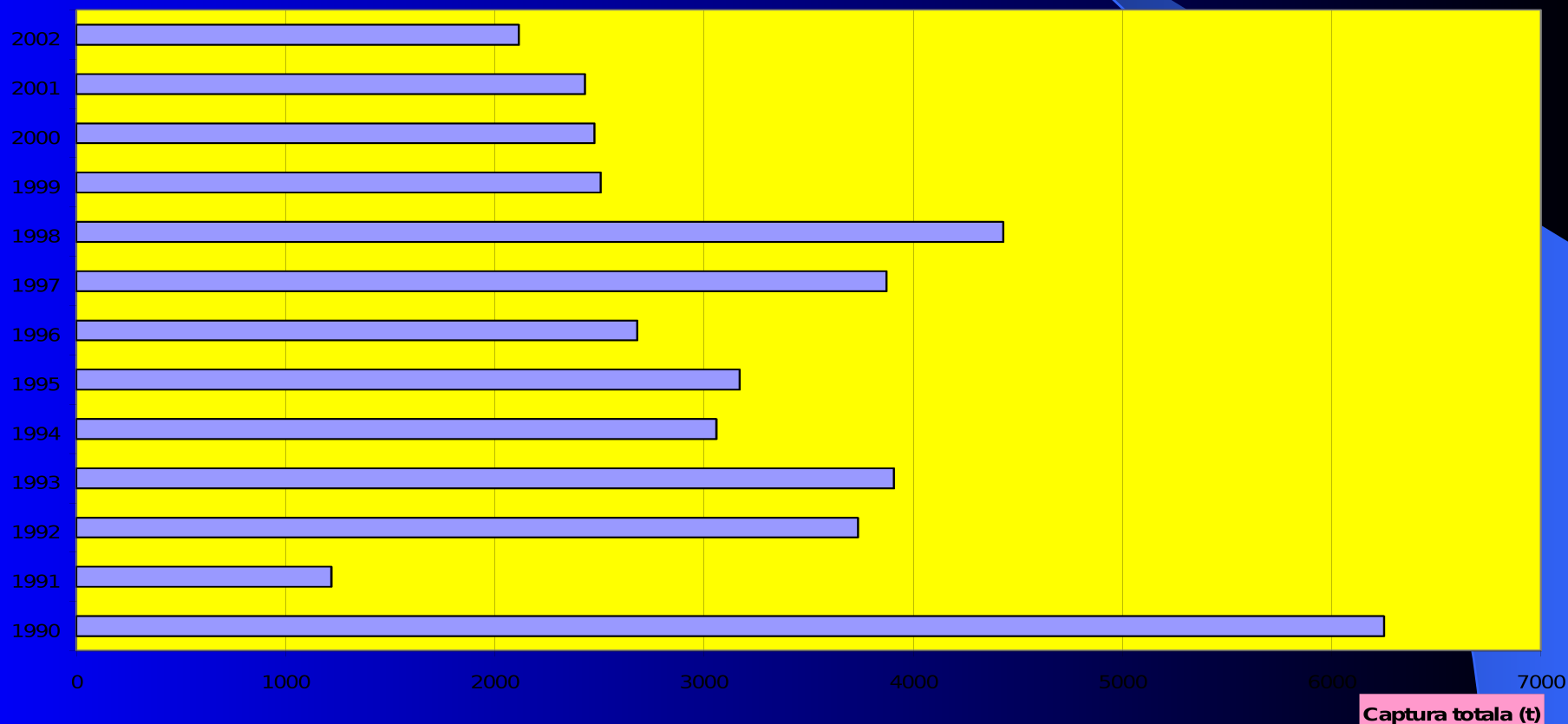
4.5. Recovery of benthic cenoses, by increase of species diversity of trophic macrobenthos.



For both zooplanktonic and zoobenthic communities, most relevant recovery trends in offshore zones, over 30 to 40 m depths (shallow water zones more vulnerable to anthropic

Needs for Sustainable Development of the Black Sea Ecosystem

4.6. Marine fish catches presently stabilized at 2.000 - 2.500 t/year (1999-2002), following a drastic involution compared to 1990.



Needs for Sustainable Development of the Black Sea Ecosystem

4.7. Diminishing of exploitation intensity and favorable environmental conditions allowed a recovery of some pelagic gregarious fish species: sprat, anchovy, horse mackerel and blue fish. This phenomenon is make evident



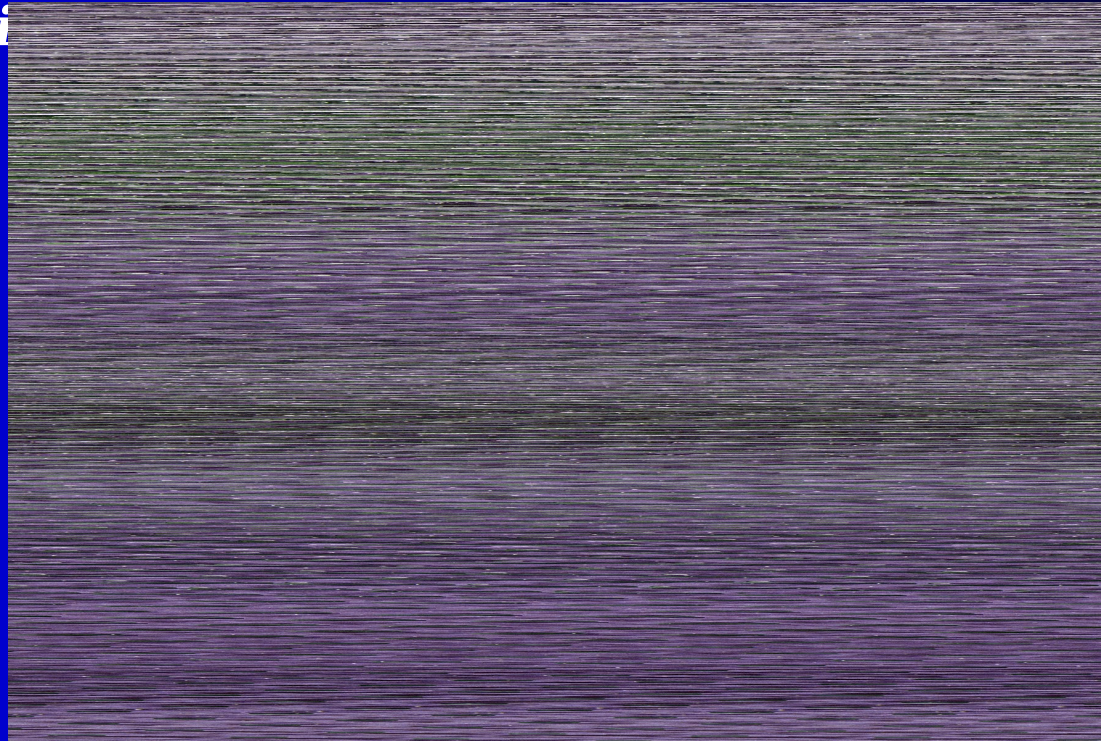
Needs for Sustainable Development of the Black Sea Ecosystem

4.8. Considerable increase of signaling frequency of dolphins in the Romanian waters, as recovery indices of their stocks. Fishing with gillnets continues to be a severe streathening.



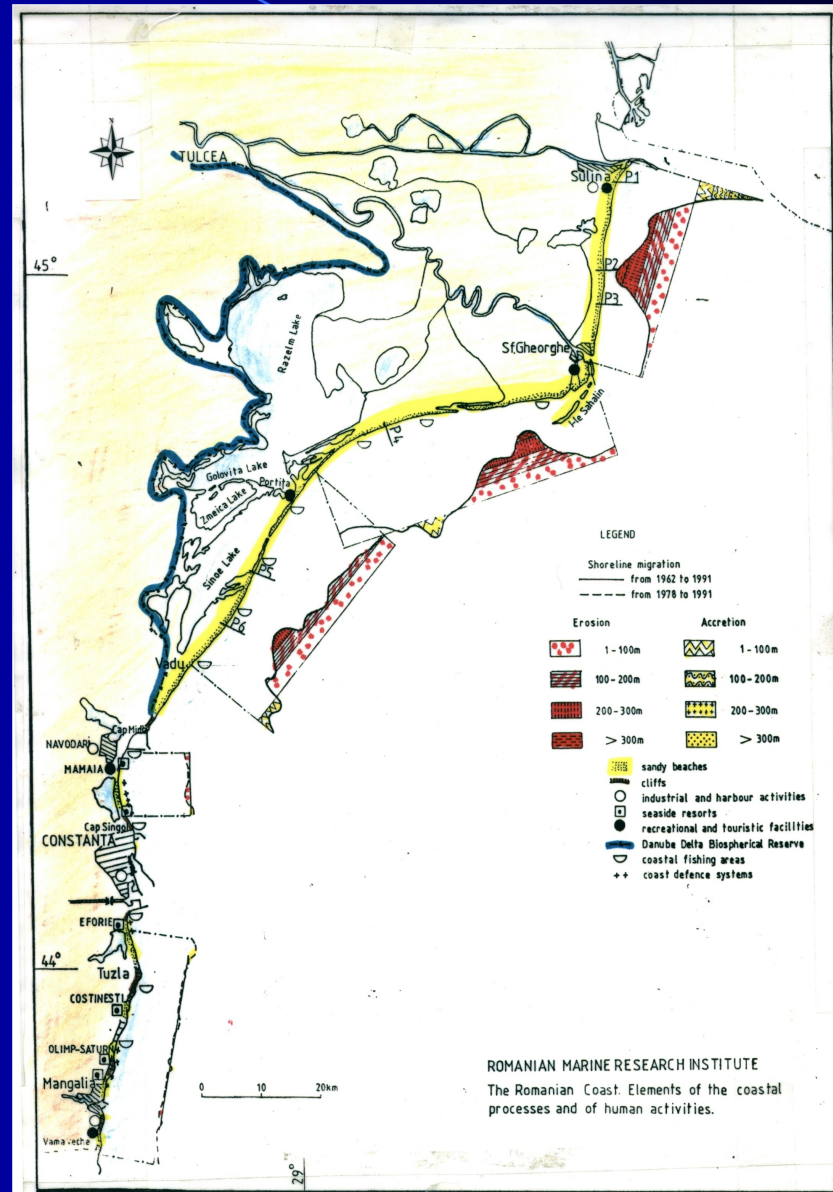
Needs for Sustainable Development of the Black Sea Ecosystem

4.9. As to biodiversity, still high number of endangered species: 206 taxa in 2003. Simultaneously, previously declining species reappeared (pilchard, mackerel, bonito, decapods species), simultaneously with the occurrence and naturalization of some recent immigrants (e.g. blue crab, *Callinectes*)



Needs for Sustainable Development of the Black Sea Ecosystem

4.10. Coastal erosion continues to act intensively in the northern and central littoral sectors.



Needs for Sustainable Development of the Black Sea Ecosystem

GENERAL CONCLUSIONS:

- On the background of restructured economic activities and of increases exigencies with respect to implementation of environment politics, a slight but continuous recovery process of the marine ecosystem has taken place during last years. Ecological improvement trends are visible both as to water quality parameters and at structural and functional level of biota.
- **Ecologically, the marine ecosystem on the whole can be assimilated to a state of convalescence. Under these conditions of fragile equilibrium, it can become vulnerable due to anthropic impact and effects of global climatic changes.**
- The continuity of the natural process of health recovery of the sea depends on the continuity and accomplishment of the conservation, protection and management measures

Needs for Sustainable Development of the Black Sea Ecosystem

- Short term priorities for ensuring sustainable development of the marine environment:

A. Actions at national level:

- Implementation of ICZM process (Law no. 280/2003, with about 30 technical-juridical provisions)
- Implementation of Water Framework Directive
- Implementation of Shellfish Water Directive
- Implementation of Habitats Directive
- Implementation of National Strategic Action Plan
- Implementation of National Action Plan for Dolphin Conservation
- Implementation of National Action Plan to Minimize the Transfer of Harmful Marine and Pathogen Organisms in Ships Ballast Water for the Black Sea Region
- Elaboration of quality norms for various types of water, for discharges, for indicators etc.

Needs for Sustainable Development of the Black Sea Ecosystem

- **Short term priorities for ensuring sustainable development of the marine environment:**

B. Actions at regional level:

- **Adoption of new Convention / Protocol of Fishing and Conservation of Black Sea Living Resources**
- **Revision of Protocol (Bucharest Convention) on Land-Based Pollution Sources**
- **Adoption of Protocol (Bucharest Convention) on Transboundary Transfer of Hazardous Substances**
- **Adoption of Regional Strategy on Biodiversity and Landscape Conservation**



Thank you very much for your attention!!

